

are 200,000 inhabitants, there must be 20,000 goats. Flocks of them wander about the streets from morning until night, and are milked as required at the customers' doors (Fig. 5).

It must be confessed there seemed little hope that an examination of these animals would yield any result. The goats appeared perfectly healthy, and they have the reputation of being little susceptible to disease of any kind.

To put the matter to the test several goats were inoculated with the micrococcus, and the result watched. There was no rise of temperature, no sign of ill-health in any way, but in a week or two the blood was found to be capable of agglutinating the specific micro-organism.

This raised our suspicions, and a small herd of apparently healthy goats was then procured and their blood examined to see if they were all healthy. Several of them were found to react naturally to the agglutination test, and this led to the examination and the discovery of the *Micrococcus melitensis* in their blood, urine, and milk.

#### MICROCOCCI IN GOATS' MILK.

Some thousands of goats in Malta were then examined, and the astounding discovery was made that 50 per cent. of the goats responded to the agglutination test, and that

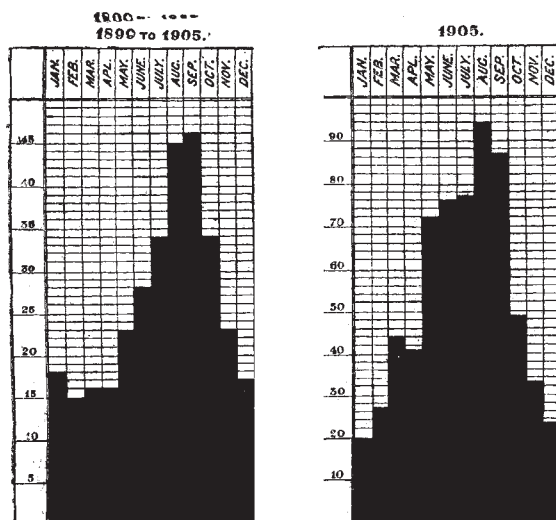


FIG. 6.—Charts of incidence among the soldiers in 1899-1905, and 1905.

actually 10 per cent. of them were secreting and excreting the micrococci in their milk.

Monkeys fed on milk from an affected goat, even for one day, almost invariably took the disease.

#### s.s. *Joshua Nicholson*

At this time, curiously enough, an important experiment on the drinking of goats' milk by man took place accidentally. Shortly, the story is as follows:—In 1905 the s.s. *Joshua Nicholson* shipped sixty-five goats at Malta for export to America. The milk was drunk in large quantities by the captain and the crew, with the result that practically everyone who drank the milk was struck down by Malta fever.

Sixty of the goats (five having died) on arrival in America were examined, and thirty-two found to give the agglutination reaction, while the *Micrococcus melitensis* was isolated from the milk of several of them. This epidemic of Malta fever on board the s.s. *Joshua Nicholson* therefore clinched the fact that the goats of Malta act as a reservoir of the virus of Malta fever, and that man is infected by drinking the milk of these animals.

#### EPIDEMIOLOGICAL FEATURES.

Here, then, at last was discovered a mode of infection which explains the curious features of Malta fever—the

irregular seasonal prevalence, the number of cases which occur during the winter months, when there are no mosquitoes and little dust. It is true there are more cases in summer than in winter, but this may be explained by the fact that more milk is used at that time of the year for fruit, in ice-creams, &c. It also explains the fact that officers are more liable than the men, as the former consume more milk than the latter. It also explains the liability of hospital patients, milk entering so largely into a hospital dietary.

#### RESULT OF MEASURES DIRECTED AGAINST THE USE OF GOATS' MILK.

As soon as goats' milk was discovered to be the source of infection, preventive measures were begun. The result is very striking, as is shown in the charts thrown on the screen, which give the number of cases of Malta fever among the soldiers in the garrison before and after the preventive measures came into action.

Here is a chart of the incidence of Malta fever among the soldiers each month before the preventive measures were put into force (Fig. 6).

And here is another showing the incidence of this fever

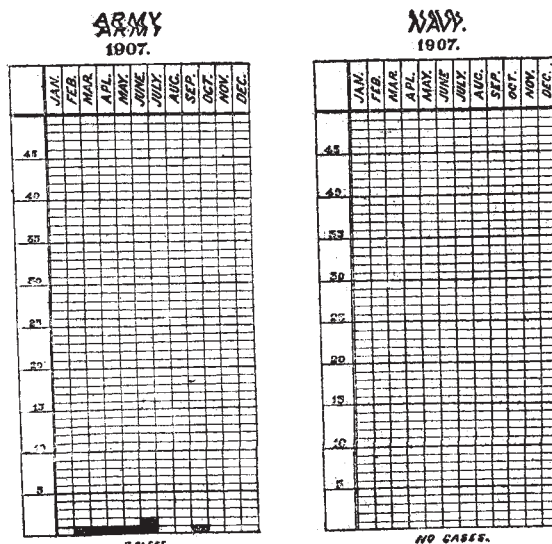


FIG. 7.—Charts of incidence among the soldiers and sailors, 1907.

among the soldiers and sailors in Malta since goats' milk has been banished from their dietary (Fig. 7).

With this chart, which shows the practical extinction of Malta fever, my discourse comes to a close.

#### RUSSIAN TRANSLITERATION.

THE system of transliteration from Russian generally adopted in British libraries and scientific bibliographies is that first published in NATURE on February 27, 1890. It was the result of consultation by a committee of which the secretaries were Prof. Miers and the writer. This system was intended to satisfy the need for some uniform practice, and it was based on the principle that no system of transliteration from Russian would be suitable for bibliographic work unless every word may be retransliterated into the original Russian spelling, so that it may be found in a dictionary. It was accordingly necessary that each Russian character should have one constant equivalent, and that the equivalents should be so arranged that the same combination of letters should not result from different Russian characters. It was also considered advisable to use accents as little as possible. Phonetic considerations and elegance in appearance were regarded as unimportant in comparison with the main requirement of certainty in re-transliteration.

The Imperial Academy of Sciences of St. Petersburg has recently adopted a system from the transcription of proper names into Russian. The symbols adopted by the Imperial Academy of Sciences are as follows:—

а б в г д е<sup>2)</sup> ё<sup>5)</sup> ж з и<sup>3)</sup> і й к л м н  
 а b v g d e, je ё ž z i, ji i j k l m n  
 о п р с т у ф х ц ч ш щ ъ ы ь<sup>4)</sup> ѳ<sup>2)</sup>  
 o p r s t u f ch c š šc — y ĭ ě, jě  
 ъ ю<sup>1)</sup> я<sup>1)</sup> ѳ v  
 e ju, iu, ja, ĭa f i

The table of Russian and Latin characters is accompanied by the following notes:—

(1) The liquid vowels и and ю beginning a syllable or preceded by ъ or ь (which, in the last case, are omitted from the transcription) are transcribed by "ja" and "ju"; if preceded by a consonant these vowels are transcribed by "ia" and "iu," if they form a syllable with the preceding consonant.

(2) The liquid vowel "e" and the vowel ѳ preceded by ъ or ь (which in this case are omitted in the transcription) are transcribed by "je" and "jě"; if preceded by a consonant these vowels are transcribed by "e" and "ě." But the liquid vowel "e" beginning a proper name is transcribed by a simple "e." Thus Egorov (pronounced Yegorov) begins with the liquid "e."

(3) The letter и preceded by ь is transcribed by "ji" (the liquid "i").

(4) The letter ѳ at the end of a word or before a consonant is transcribed by "i."

(5) The letter "e," when it is pronounced "jo," is represented, as in Russian, by "ё," but only when the author writes his name in that way.

(6) The names of foreign authors who have written in Russian are re-transcribed according to this system when the original orthography of these names is unknown; when it is known, the transcription of the Russian form of the name can be given in a note.

The British system also proposed to use the original form of any Russianised proper name in preference to re-transliterating them.

The Russian Academy's system does not attempt to secure the precision in re-transliteration which was the main object of the British system; for the letter "f" stands for either ф or ф; "u" stands for "y" or occurs in combination with "j" (which is itself the transliteration of й) for ю; "i" may be the transliteration of any one of four letters, и, і, ѳ, or v, as well as in combination with "u" and "a" from ю or я. The English "e" is the equivalent of either "e," ѳ, or ѳ. Five Russian letters have alternative transliterations. Phonetically, the Russian system has some advantage over the British, although in this respect it is in some ways less satisfactory. The Russian system, however, is proposed only for proper names, for which a less rigid system is perhaps necessary than for general scientific and bibliographic work.

J. W. GREGORY.

#### DYEING QUALITIES OF NATURAL AND SYNTHETIC INDIGO.

THE annual report, written by Mr. Cyril Bergtheil, of the Indigo Research Station of the Bihar Planters' Association for the year 1907-8 has just been issued; it contains an interesting statement with regard to the value of "synthetic" indigo as a dye-stuff compared with natural indigo. From last year's experiments (see NATURE, vol. lxxv., p. 614) it was concluded that "synthetic" indigo gives poorer results under practical conditions than those obtained with the natural dye, the latter imparting a richness of shade or "bloom" which was unobtainable with the synthetic material. It has since been ascertained that the synthetic indigo supplied for the tests was "brand E" of the Badische Anilin- und Soda-Fabrik, which contains some 25 per cent. of lime; the presence of this high proportion of alkali would of itself

account for the bad results obtained in the hydrosulphite vat. Experiments will now be made using the material which the Badische company itself recommends for the hydrosulphite vat.

The rest of the report deals with the results obtained in experiments made to ascertain the best conditions to be observed during the growth of the indigo plant, and in the extraction of the dye subsequently. Good results have been obtained by the use of sulphuric acid as a means of facilitating the germination of the seed of the Java plant, as recommended in a previous report (NATURE, vol. lxxv., p. 497), but care must be observed in ensuring that the acid used is of correct strength. A number of interesting experiments made to ascertain the effect of manuring on the production of indican in the plant are also reported. It would appear that the proportion of indican in the plant is independent of, or is actually decreased by, manurial treatment; in fact, the production of indican appears to be a starvation phenomenon, the proportion of the dye being increased by the absence of moisture and by adverse climatic conditions. On the other hand, the fertility of the land must not be allowed to drop too much, otherwise the growth of the plant as a whole is interfered with, and the return of the dye per acre is affected. New fungoid diseases, and an insect pest producing ravages on indigo plants, are also dealt with in the report.

#### MAY METEORS.

MAY, like June, cannot be said to be prolific of meteoric showers or to offer special inducements to observers. There are, of course, the May Aquarids, due during the first week of the month in the morning hours. There is also a pretty rich shower of Coronids between about May 11 and 18, but they are not often seen in marked prominence; and I believe there is a special shower at the close of May from the N.W. region of Pegasus; at about 334°+28°, which deserves more attention. I found the position of this radiant on reducing a number of meteors recorded by the Italian Meteoric Association in 1870, and very satisfactorily confirmed the showers in 1886 May 29 to June 4, the exact positions being 330°+28° and 333°+27° respectively.

There is a well-marked radiant of slow meteors from this point in July and August, but it has been seldom noticed at the close of May and early days of June. This year moonlight will not interfere with observation, and it would be interesting to watch the eastern sky in the mornings of May 29 to June 4 for the purpose of further investigating these η Pegasids. They are of the Perseid type, being swift and streaking meteors, and I think the stream may prove of some importance among the spring showers, though very little is known of it.

Any observations conducted for the purpose of re-detecting the system may also be found useful in giving us a fuller insight into the other meteoric displays of the same period.

W. F. DENNING.

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Twenty students matriculated this term, bringing the total number for the year up to 1162. This is an advance of seventy-nine on the numbers for last year, and of ninety-seven on the numbers for 1906 to the present date. The increase in the number of advanced students over that of last year is ten.

It is proposed to confer the degree of Master of Arts, *honoris causa*, upon Mr. A. Henry, reader in forestry.

Mr. F. Darwin, F.R.S., has been nominated the representative of the University at a meeting convened by the Linnean Society of London to be held in July in celebration of the fiftieth anniversary of the reading of the joint essay by Charles Darwin and Alfred Russel Wallace "On the Tendency of Species to form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection."

The general board has reported on the proposed readership in metallurgy which the University will be enabled to establish by the munificence of the Goldsmiths' Com-